



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,529	09/22/2003	Kohichi Yamauchi	1560-0397P	5921
2252	7590	07/27/2009	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH			DHINGRA, PAWANDEEP	
PO BOX 747			ART UNIT	PAPER NUMBER
FALLS CHURCH, VA 22040-0747			2625	
NOTIFICATION DATE		DELIVERY MODE		
07/27/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/665,529	<b>Applicant(s)</b> YAMAUCHI ET AL.
	<b>Examiner</b> PAWANDEEP S. DHINGRA	<b>Art Unit</b> 2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 23 June 2009.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-9 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application  
6) Other: \_\_\_\_\_

#### **DETAILED ACTION**

- This action is responsive to the following communication: Request for continued examination (RCE) filed on 06/23/2009.
- Claims 1-9 are now pending.

#### ***Response to Arguments***

Applicant's amendments, filed 06/03/2009 have been entered and fully considered. However, applicant's arguments filed 06/03/2009 have been fully considered but they are not persuasive.

Applicant argues that transfer unit of Numazu does not include the transfer member of black color as recited in the amended claim 1.

In reply, examiner asserts that in light of previously presented limitations of claim 1, examiner interpreted the combination of movable arm 55 and cam 63 in figure 1A-2A of Numazu to sufficiently teach the transfer unit.

However, now in light of the new amendments to the claim 1, examiner interprets in this interpretation the transfer unit to be at least the combination of movable arm 55, cam 63, drum 42 and brushes 44d-45d in figs. 1A-2A of Numazu to sufficiently teach the transfer unit of newly amended claim 1.

Examiner further asserts that image transfer brushes 44a, 44b, 44c, and 44d correspond to the four photosensitive drums 41a, 41b, 41c and 42, respectively (col. 10, lines 31-54) and are regarded as to teach the "transfer members" of claim 1. Furthermore, transfer brush 44d is for photosensitive drum 42 corresponding to an image forming unit 77d containing black toner (col. 14, lines 39-46). Transfer brush 44d

is part of the transfer unit and thus, transfer unit of Numazu successfully discloses to include the transfer member of black color as recited in the amended claim 1.

Applicant further argues that Numazu fails to teach the transfer unit having a rotary fulcrum positioned in the vicinity of a transfer member.

In reply, examiner asserts Numazu sufficiently discloses the limitations as recited in claim 1: transfer unit (combination of arm 55, cam 63, drum 42, brushes 44d-45d, figs. 1-2) has a rotary fulcrum (cam 63, figures 1-2) positioned outside the belt (belt 43, fig. 1) and in the vicinity of an extension of the axis of a transfer member located on one end portion in the sheet transporting direction (direction H, see figure 1A) so as to be approximately parallel to the axis (see figures 1A and 2A with corresponding text, note that cam 63 is in the vicinity of an extension of the axis of transfer brush 44d located on one end portion in the sheet transporting direction H so as to be approximately parallel to the axis)

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "transfer unit having a rotary fulcrum positioned in the vicinity of a transfer member") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims.

See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/23/2009 has been entered.

***Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "...in the vicinity of an extension of the axis of a transfer member..." There is insufficient antecedent basis for "the axis" in the claim.

***Examiner Notes***

Examiner cites particular columns and line numbers in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested that, in preparing responses, the applicant fully consider the

references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-2, 6, and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Numazu et al., US 5,765,082.

Re claim 1, Numazu discloses an image forming apparatus (see figure 1A) comprising: a plurality of image carriers (see 41a, 41b, 41c, 42 in figure 1A) arranged in a sheet transporting direction (direction H, see figure 1A) (see figs. 1A, 2A with text), the plurality of image carriers comprising an image carrier of black (element 42, fig. 1A, col. 14, lines 39-43) and an image carrier of a color other than black (elements 41a, 41b, 41c, in figure 1A, col. 14, lines 43-46); and a transfer unit (combination of arm 55, cam 63, drum 42, brushes 44d-45d, figs. 1-2), which has transfer members (transfer brushes 44a-44d, figs. 1-2) corresponding to the respective image carriers image (transfer brushes 44a, 44b, 44c, and 44d correspond to the four photosensitive drums 41a, 41b, 41c and 42, respectively (col. 10, lines 31-54) and are regarded as to teach the "transfer members") (see figs. 1-2 with text), for transferring images carried on the respective

image carriers (col. 10, lines 45-49) (see also col. 10, line 31-col. 11, line 6) and a belt (belt 43, fig. 1) suspended from the transfer member (see figures 1A and 2A with corresponding text), wherein the transfer members comprise a transfer member of black (transfer brush 44d, figs. 1A, 2A, note that transfer brush 44d is for photosensitive drum 42 corresponding to an image forming unit 77d containing black toner, col. 14, lines 39-46) and a transfer member of the color other than black (transfer brushes 44a, 44b, 44c, figs. 1A, 2A, note that transfer brushes 44a, 44b, 44c are for photosensitive drums 41a, 41b, 41c corresponding to an image forming unit 77a, 77b, 77c, respectively containing yellow, magenta and cyan toners, col. 14, lines 39-46), wherein the transfer unit has a rotary fulcrum (see cam 63, figures 1-2) positioned outside the belt and in the vicinity of an extension of the axis of a transfer member located on one end portion in the sheet transporting direction so as to be approximately parallel to the axis (see figures 1A and 2A with corresponding text, note that cam 63 is in the vicinity of an extension of the axis of transfer brush 44d located on one end portion in the sheet transporting direction H so as to be approximately parallel to the axis), and can be rotated on the rotary fulcrum in directions of moving to and from the image carriers (see figures 1A, 2A with text; col. 12, lines 11-45; column 15, lines 27-column 16, line 67, and discussion in arguments above), and wherein a distance between any two of the transfer members stays constant during a rotation of the transfer unit (note that "*The three image transfer brushes 44a, 44b and 44c...are integrally attached to the movable arm 55, and are vertically moved by the swing of the movable arm 55 relative to the conveyor belt 43*" (see column 12, lines 7-10), thus distance between any two of the image transfer brushes 44a, 44b and 44c stays

constant, before and after rotation/movement of the movable arm 55. Also see figs. 1A, 5A-B with text, which shows that distance between any two of the image transfer brushes 44a, 44b and 44c stays constant, before and after rotation/movement of the movable arm 55. Hence, the distance between any two of the transfer members stays constant during a rotation of the transfer unit assembly).

Re claim 2, Numazu discloses the transfer members (i.e. rollers) are movable in directions of moving to and from the image carriers (see figures 1A and 2A with corresponding text).

Re claim 6, Numazu further discloses the rotary fulcrum is provided separately from any shaft and transfer members (see figures 1A and 2A with corresponding text).

Re claim 9, Numazu further discloses wherein the belt path remains the same as the transfer unit is rotated on the rotary fulcrum in directions moving to and from the image carriers (see figs 2A, 5A-B; column 6, line 54-column 7, line 56; column 11, lines 55-59; column 15, lines 27-column 17, line 67).

#### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- a. A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 5-7 are rejected under 35 U.S.C. 103 as being unpatentable over a Numazu et al., US 5,765,082 In view of Futoshi, JP 9-292753.

Re claim 3, Numazu fails to explicitly disclose the transfer unit includes a supporter for supporting the transfer members, and the supporter has the rotary fulcrum.

However, Futoshi teaches the transfer unit includes a supporter for supporting the transfer members, and the supporter has the rotary fulcrum (see paragraphs 4-11 in US 2004/0062577 and paragraphs 1-22 in Futoshi).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention to modify the image forming apparatus as disclosed by Numazu to include the image forming apparatus as taught by Futoshi for the benefit of having a proper image, which is formed by the easy configuration and tuning activity as taught by Futoshi at paragraph 22.

Re claim 5, Numazu further discloses a transfer unit (see explanation & discussion given in arguments & claim 1 above) comprising: a plurality of juxtaposed transfer members (see explanation & discussion given in claim 1 above); a belt (belt 43) suspended from the transfer member (see figures 1A and 2A with corresponding text), wherein the transfer members comprise a transfer member of black (transfer brush 44d, figs. 1A, 2A, note that transfer brush 44d is for photosensitive drum 42 corresponding to an image forming unit 77d containing black toner, col. 14, lines 39-46) and a transfer member of the color other than black (transfer brushes 44a, 44b, 44c,

figs. 1A, 2A, note that transfer brushes 44a, 44b, 44c are for photosensitive drums 41a, 41b, 41c corresponding to an image forming unit 77a, 77b, 77c, respectively containing yellow, magenta and cyan toners, col. 14, lines 39-46), wherein a rotary fulcrum (see element cam 63, figures 1-2) positioned outside the belt and in the vicinity of an extension of the axis of a transfer member located at one end portion in a direction (see figures 1A and 2A with corresponding text and discussion of claim 1 above) in which the transfer members are juxtaposed, so as to be approximately parallel to the axis (see figures 1A, 2A with text, and discussion in claim 1 above), and wherein a distance between any two of the transfer members stays constant during a rotation of the transfer unit (see figures 1A and 2A with corresponding text, and explanation & discussion given in claim 1 above).

Numazu fails to further disclose a supporter for supporting the transfer members so as to be rotatable and movable in a radial direction, and wherein the supporter has a rotary fulcrum.

However, Futoshi teaches a supporter for supporting the transfer members so as to be rotatable and movable in a radial direction (see paragraphs 4-11 in US 2004/0062577 and paragraphs 1-22 in Futoshi), wherein the supporter has a rotary fulcrum (see paragraphs 4-11 in US 2004/0062577 and paragraphs 1-22 in Futoshi).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention to modify the image forming apparatus as disclosed by Numazu to include the image forming apparatus as taught by Futoshi for the benefit of having a

proper image, which is formed by the easy configuration and tuning activity as taught by Futoshi at paragraph 22.

Re Claim 6, Futoshi also teaches the rotary fulcrum is provided separately from any shaft and transfer members (see paragraphs 4-11 in US 2004/0062577 and paragraphs 1-22 in Futoshi).

Re claim 7, Numazu fails to further disclose the rotary fulcrum is fixed to the supporter.

However, Futoshi further teaches the rotary fulcrum is fixed to the supporter (see paragraphs 4-11 in US 2004/0062577 and paragraphs 1-22 in Futoshi).

7. Claim 4 & 8 is rejected under 35 U.S.C. 103 as being unpatentable over Numazu et al., US 5,765,082 in view of well-known art.

Re claim 4, Numazu further discloses the transfer unit (see figure 3) is rotatable on the rotary fulcrum (elements 63, 62, figure 1A) so that a distance between a first transfer member and an image carrier corresponding to the first transfer member comes to a separated position when the transfer unit is separated from the image carriers (see figures 1A and 2A with text), wherein the first transfer member is adjacent to a second transfer member, the second transfer member being closer to the rotary fulcrum than the first transfer member (see figure 1A).

Numazu does not disclose expressly an image carrier corresponding to the first transfer member comes to between 2.5 mm and 4 mm when the transfer unit is separated from the image carriers, wherein the first transfer member is adjacent to a

second transfer member, the second transfer member being closer to the rotary fulcrum than the first transfer member.

However, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to separate the transfer unit with distance between 2.5 mm and 4 mm from the image carriers as an obvious design choice for having the transfer unit separated from the image carriers at a safe distance as desired. One of ordinary skill in the art, would have expected applicant's invention to perform equally well with Numazu's image forming apparatus because Numazu's invention provides the same advantages and solves the same problems illustrated by applicant's invention such that at separated position, the transfer belt only contacts the desired photoconductive element, hence there would be no rubbing between other photoconductor drums and transfer members or an instance of a poor transfer would ever occur. Furthermore, Mizoguchi et al., US 6,470,166, see column 6, lines 20-27 teaches "In order to protect drum 5a from damage, the contact position of roller 13Y with belt 3 is shifted from the contact position of drum 5a with belt 3 by distance X. This displacement thus avoids contacting drum 5a with roller 13Y via belt 3" (note that again the goal is the same and the distance X can be between 2.5 mm and 4 mm or as desired by the user to serve the same purpose).

Re claim 8, Numazu does not disclose expressly wherein the transfer unit is rotatable between 2° and 3° on the rotary fulcrum.

However, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to rotate the transfer unit between 2° and 3° on the rotary fulcrum

as an obvious design choice for having the transfer unit separated from the image carriers at a safe distance. One of ordinary skill in the art, would have expected applicant's invention to perform equally well with Numazu's image forming apparatus because Numazu's invention provides the same advantages and solves the same problems illustrated by applicant's invention such that at separated position, the transfer belt only contacts the desired photoconductive element, hence there would be no rubbing between other photoconductor drums and transfer members or an instance of a poor transfer would ever occur.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAWANDEEP S. DHINGRA whose telephone number is (571)270-1231. The examiner can normally be reached on M-F, 9:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571) 272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. D./  
Examiner, Art Unit 2625

/David K Moore/  
Supervisory Patent Examiner, Art Unit 2625